IBOLC Physical Dominance Practical Programming Manual

Compiled by CPT Batcho

Table of Contents

Chapter 1: Warm Up	
Section 1: General Fitness	1
Section 2: Flexibility	2
Section 3: Running Development Drills	2
Chapter 2: Speed Training	
Section 1: Biomechanics	3
Section 2: Speed Components	3
Section 3: Training Principles	5
Chapter 3: Endurance Training	
Section 1: Biomechanics	6
Section 2: Training Classification	6
Section 3: Training Approach	8
Chapter 4: Strength Training	
Section 1: Weight Training	11
Section 2: Multijumps, Multithrows, Medicine Balls	16
Section 3: General Strength	18
Chapter 5: Coordination and Flexibility Training	
Section 1: Coordination Training	20
Section 2: Felxibility Training	22
Chapter 6: Finishing the Plan	
Section 1: Putting It All Together	22
Section 2: Case Study	22

Warm Up

The warm up is the portion of a training session that prepares the body for the upcoming training units in the session. The warm up consists of more than just increasing the body temperature. This is a chance to loosen joints and muscles while priming the motor neuron pathways for training. Flexibility, coordination, and special strength can be trained during the warm up as well. All planes of motion should be emphasized or at a minimum the plans of motion that will be seen in the training session. The intensity should increase gradually throughout the warm up. The warm up is movement preparation. The warm up needs to be tailored to the training session. Every warm up does not need every component listed below. If the session doesn't involve running, the running development drills may not be needed. A warm up should last as long as necessary to produce optimal performances. For a high intensity workout the warm up should progress from low intensity to moderate intensity back to low intensity so the CNS is not over excited. A moderate to low intensity workout can have a warm up that progresses in intensity.

Components of the Warm Up

General Fitness

The initial portion of the warm up should contain a portion that takes the body from a resting to an active state. This portion can contain skipping exercises, general calisthenics, or even light jogging or biking. The concern with light jogging is if it is done sloppy it will reinforce bad running mechanics. The general fitness portion will begin to raise body temperature and increase blood flow. An increase in body temperature helps to increase the efficiency of the nervous system. The higher temperature decreases the resistance of the nervous system when sending signals. The general fitness portion will also start to groove the soft tissue for training. The routine should be selected based on the upcoming session. If running is to be performed the routine should be more locomotive.

Example Routines

Mini Band Routine (12" band above ankles)
-Sidestep
-Walk - Forward/Back
-Carioca
-Monster Walk
Basic Core (3 Kg Med Ball)
-Wide Rotation x 20
-Tight Rotation x 20
-Side to Side x 20
-Chop to Knee x 20
- Figure 8 x 20
-Big Circle x 5 each direction
Balance & Stability
-Single Leg Squat (Hold each position five counts)
Straight 2 x ea leg
Side 2 x ea leg
Rotation 2 x ea leg
**Vern Gambetta: Functional Path Training*

200m Skip
600m Jog
50m Alternating Gallup
50m Skip w/ Arm Cross
50m Pickup Run
50m Backward Skip w/ Arm Cross
50m Skip Lunge
50m Side Skip (L &R)
50m Backward Run
50m Crossover Run
**Mike Young: Athletic Lab*

Dynamic Warmup
Couch Stretch x30s
Lateral Lunge x10m
Torokhity Pulls x10 reps
Muscle Snatch x10 reps
Behind the Neck Press x5 reps
Overhead Squat x10 reps
Snatch Balance x5 reps
Behind the Neck Sots Press x5 reps
Overhead Squat Hops x5 reps
**California Strength*

Flexibility

During the warm up, flexibility can be either/both static or dynamic. The intensity or desired outcome of the training session is what determines the type of flexibility that should be done. For training sessions where the desired outcome is high speed running, heavy strength, or explosive power then dynamic stretching is the optimum choice. Static stretching is best placed on recovery or low intensity days. The active/dynamic flexibility exercises involve large ranges of motion at fast speeds. These exercises prep the soft tissue at the end range of motion for upcoming activity. Static stretching are traditional stretching routines. Yoga, PNF (proprioceptive neuromuscular facilitation,) and facilitated stretching all can be grouped in this category as well. In a short time frame stretching has not been shown to reduce injuries in athletes. Also, static stretching has been shown to decrease performance immediately following bouts of stretching. Note, however, that most of those studies have static stretches being held for 60 seconds or longer and most static stretching in warm up does not last that long.

Example Routines

Dynamic Flexibility (10x)	*Static Flexibility (10-30s)*	*Movement Prep*
-Trunk Twist	*-Fetal*	*Mini-Band Glute Activation Circuit x10m*
-Hip Circle	*-Deep Squat*	*Hip Flexor Stretch x60s*
-Dynamic Plough	*-Butterfly*	*Band Pull-Apart 3x10*
-Single Leg Knee Tuck	*-Hip Flexor*	
-Single Leg Hamstring	*-Hands Behind Back*	
-Double Arm Circle	*-Lying Hamstring*	
-Side Leg Swing	*-Calf Stretch*	
-Walking	*-Quad Stretch*	
	-Roll Back	

Running Development Drills

These drills are modifications of walking, running, and skipping. Their purpose is dynamic flexibility, technical teaching progression, and movement pattern strengthening. The drills train flexibility, coordination, and strength. Drills like the A “drill”, B “drill”, and C “drill” break the running stride down to its component parts. The drills strengthen the muscles involved in these movement patterns. When the drills are done marching or skipping they develop parts of running technique like knee lift, body lean, arm action, and etc. These drills can be used to create specific portion in the warm up.

Example Combinations

Ankling	*Ankling*	*Front Leg Extension*
A Skip	*High Knees*	*Backward Run*
B Skip	*Butt kicks*	*Side A Skip*
High Knees	*Side Skip*	*Side Skip*
Butt Kicks	*Backward Run*	*Crossover Run*
Fast Leg		

Speed Training

Speed is the ability to move the body at maximal velocity. For the purposes of this manual, speed will be dealt with from the perspective of running. Speed in other modalities will not be covered because 99% of combat does not require soldiers to row, swim, or bike. Based on the principles covered in training theory coaches know that training needs to be specific to create specific adaptations. Therefore, to be great at moving from point on A to B over land the athletes need to train that way, i.e. to be good at running and walking you need to run and walk.

Biomechanics

High speed running is a learned skill. There is a general model of how the body should function. Posture is crucial for efficient running. The body needs to be stabilized with the head and spine inline. Head needs to be in a neutral position to the spine. The pelvis should be stable but be allowed some freedom to move. There should be slight posterior pelvic tilt. This position is best for relaxation, freedom of movement, stability, and use of elastic energy. Left and right side movements should be uniform. Proper force application in running stems from proper biomechanics. The legs will amplify any small movement in the pelvis. Force should be applied from the hip extending and the force being transmitted through the leg. The ankle needs to be in dorsi-flexed position prior to contact and the foot strike should be on the ball of the foot. The upper body's function is to counter the movements of the lower body to create stability. The elbow experiences flexion on the upswing to match the increased firing of the leg. There is some deviation towards the midline to counter any pelvic oscillations. The center of mass of body follows wave path in sagittal plane. This allows the body to store elastic energy when the center of mass is at the lowest point.

Acceleration

Typically acceleration occurs from 0-40m. With acceleration, the body has lean that starts at the ankles and gradually progresses to vertical. The heel recovery stays low meaning the heel won't come up to the buttocks. There needs be complete pushes and triple extension.

Intensity needs to be high and recoveries long to allow intensity to remain. Since acceleration work occurs using the ATP-CP energy system the recovery lengths should match the times

needed to recover that system. A good rule of thumb is 45 seconds to 1 minute per 10m of running distance. Acceleration work is normally done in two forms.

Acceleration Development Runs: Sprints done up to 40 meters that emphasize acceleration abilities and mechanics.

Resisted Runs: Sprints with some form of resistance where the loading forces the body to emphasize acceleration mechanics. Examples are harness runs, sled pulls, or hill sprints. With sled pulls, the load should be no more than 10% of the athlete's body weight because here the purpose is speed. The grade for the hill should not be more than 20 degrees because again the focus is speed. A high grade for the hill or heavier sled will degrade speed too much. Strength and horizontal forces are components of proper acceleration.

Example Speed Development

Hill Sprint	*Sled Pull*	*Acceleration Development*
-8x20m w/ 2 min rest	*-10x15m @ 10% BW w/ 90s rest*	*-8x30m w/ 3 min rest*

Speed Development

Speed development work is typically 40-80m. Its purpose is to improve absolute velocity. The mechanics of maximal velocity running are an upright posture, high knee recovery, dynamic arm swing, and foot contacts under the hips. For speed development training, max velocity should be held for up to 3 secs and with the high intensity, rest periods should be long (4-6 minutes.) There should be at least 72 hours between speed sessions.

Speed Development Runs: Sprints that last from 40-60m. This allows the athletes to work up to speed and spend a period time running at maximal velocity.

Variable Speed Runs: These are runs with alternating periods of relaxed running and maximal velocity running. Examples are sprint, float, sprint or run-ins. The runs range in length from 40m- 100m.

Example Speed Development

Run-in	*Variable Speed*	*Speed Development*
-8x10m sprint w/ 30m sub-max run-in w/ 4 min rest	*-5x90m Sprint, Float, Sprint (35m, 20m, 35m) w/ 6 min rest*	*-7x55m w/ 5:30 rest*

Speed Endurance

This work is designed to improve max velocity endurance and anaerobic fitness. The work typically ranges from 80-150m per rep with recoveries long enough to maintain the quality. The workout normally contains 3-8 repetitions, and because the demand these sessions place on the body, the workout requires at least 72 hours between speed endurance sessions. The athletes need to be tall and upright during the reps.

Example Speed Endurance

-5x150m at 90% w/ 6 min rest	*-150m, 120m, 90m at 95% w/ 10 min rest*	*-5x105m at 100% w/ 5 min rest*

Special Endurance I and II

These workouts focus on anaerobic power and lactic acid tolerance. The reps range from 150m-600m. The rest is full recovery which ranges from 10 minutes on the shorter reps up to 20 minutes or more on longer reps.

Example Special Endurance

Special Endurance I	*Special Endurance I*	*Special Endurance II*
-5x200m at 95% w/ 12 min rest	*-3x300m at 90% w/ 12 min rest*	*-500m, 400m, 300m at 95% w/ 18 min rest*

Speed Tempo

Endurance training with a speed emphasis is broken into two categories, extensive and intensive tempo. Extensive tempo is designed to improve aerobic capacity. The intensity is 70% or under to emphasize aerobic capacity and 70-79% to emphasize aerobic power. The rest is manipulated to get the training aerobic, but still allowing some velocity with proper mechanics. Intensive tempo is focused on boosting anaerobic capacity. The intensity is 80-89% with the rest shortened to not allow full recovery.

Example Speed Tempo

Extensive Tempo	*Extensive Tempo*	*Intensive Tempo*
-18x100m at 70% w/ 1 minute rest	*-8x150m at 75% w/ 90s rest*	*-6x200m at 80% with 4 minute rest*

Basic Principles

Speed training should precede endurance training for both a training day and microcycle. Speed and endurance need to be trained concurrently. For all speed, training proper mechanics need to be emphasized. Training is never isolated. Speed effects endurance, strength effects speed and endurance, and endurance effects speed and strength; everything is interrelated. Speed needs to be trained across a spectrum of different distances and intensities. Submaximal sprinting allows emphasis on mechanics and coordination and the helps to build capacity. Acceleration work should precede speed training and speed development should precede speed endurance. An athlete cannot endure a quality that they do not have.

Terminology	Length of Run	Component	Energy System	% of Predicted Performance	Rest Interval Between Reps/Sets	Daily Volume Ranges 100/200/ 110/100mH	Daily Volume Ranges 400/400mH
ABSOLUTE SPEED	20-80m	Speed (s) Anaerobic power	Anaerobic Alactic	90-95% 95 - 100%	3-5 / 6-8 min 3-5 / 6-8 min	300-800m 300-500m	300-900m 300-600m
SPEED ENDURANCE	50-80m	Alactic Short Speed End. (ASSE)	Anaerobic Alactic	90 - 95% 95 - 100%	1-2 / 5-7 min 2-3 /7-10 min	300-800m 300-800m	600-1200m 600-1200m
SPEED ENDURANCE	80m	Glycolytic Short Speed End. (GSSE)	Anaerobic Glycolyte	90 - 95% 95 - 100%	1 / 3 min 1 / 4 min	300-800m 300-800m	600-1200m 600-1200m
SPEED ENDURANCE	0-150m	Speed Endurance (SE)	Anaerobic Glycolyte	90 - 95% 95 - 100%	5 - 6 min 6 - 10 min	300-900m 300-600m	400-1000m 400-800m
SPECIAL ENDURANCE I	150-300m	Long Speed Endurance (LSE)	Anaerobic Glycolyte	90 - 95% 95 - 100%	10 - 12 min 12 - 15 min	600-900m 300-900m	600-1200m 300-1000m
SPECIAL ENDURANCE II	300-600m	Lactic Tolerance (LAT)	Lactic Acid Tolerance	90 - 95% 95 - 100%	15 - 20 min Full	300-600m 300-600m	900-1200m 300-900m
INTENSIVE TEMPO	100-600m	Anaerobic Capacity (ANC)	Mixed: Aerobic Anaerobic	80 - 89%	30s - 5 / 3-10 min	800-1800m	1000-2800m
EXTENSIVE TEMPO	200-800m 100-200m	Aerobic Capacity (AC)	Aerobic Aerobic	40 - 79% 60 - 79%	45 - 2 min 30s / 2-3 min	1400-2500m 1400-1800m	2400-4000m 1800-3000m
CONTINUOUS TEMPO	1600-6400m	Aerobic (AC)	Aerobic	40 - 60%	Heart Rate 130-150	1600-3200m	3200-6400m

Endurance Training

Endurance training is the ability to endure a quality for a period of time. Endurance can be categorized into multiple categories; aerobic and anaerobic endurance for speed events, aerobic and anaerobic for long distance events, and work capacity. For this section endurance training will be addressed from the perspective of long distance events. Work capacity will be addressed in the strength section. Work capacity is the ability to withstand high loads of training for any modality. Endurance in terms of speed training was addressed in the speed tempo section.

Biomechanics

Running in general is a learned skill. Endurance has more variance than the model for sprint mechanics but there are general principles. Start with the foot strike where the foot lands on its outside edge and rolls flat. The strike should be with the mid or fore-foot. This minimizes braking forces and initial impact load. The foot should strike the ground relatively close to under the body's center of mass. The shin should be perpendicular to the ground. Allow the heel to touch the ground as the body moves over the foot that contacted the ground. This allows the leg to be loaded appropriately and the Achilles stretch reflex to be activated. Hip extension is what creates the forward momentum and the foot is generally along for the ride. Once the leg leaves the ground there is minimal benefit to active pulling in back under the glutes and getting the foot back on the ground. The foot should not paw at the ground before contact. The hamstring is not used to pull against the ground but is used to stiffen the tendons and absorb the load eccentrically as the foot hits the ground. The arms are bent at the elbow and should move forward and backward with the rotation originating at the shoulder. The arms should swing across the body.

Training Classification

The system used for classifying workouts was originally created by Renato Canova and is currently taught by the Elite Coach Steve Magness. This is a departure from traditional American distance

training during the 1990s. That training was based on zones: lactate threshold, VO2max, and Supra- Vo2max.

Since everything is connected, the training system builds its classification around a specific goal race distance. Categories are used because the human brain functions best when it can categorize things. In this system though the categories aren't based specific physiological zones that don't change based on the desired race distance. The categories tie specifically to goals to create a smooth progression that trains at a variety of paces because all the paces interact and build off each other. The below table shows the categories:

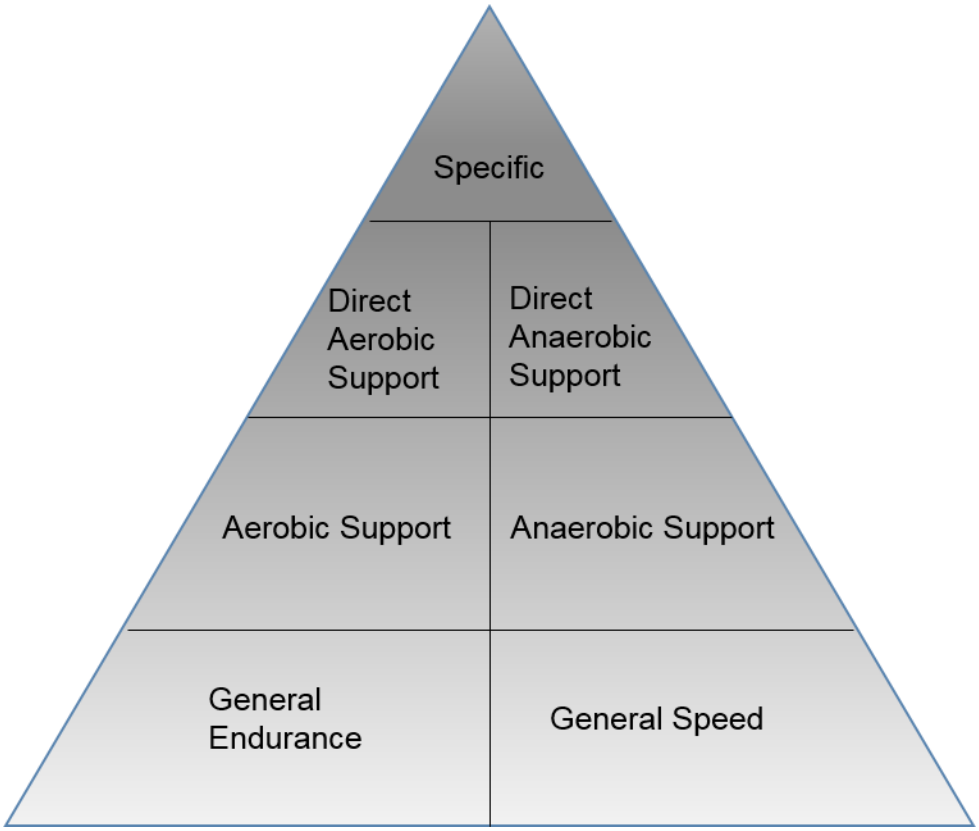
Classification Name	**Pace Level**	**2 mile Example**
Recovery	*Anything Slower*	*Anything Slower*
General Endurance	*3 race distance up +/-*	*Half Marathon to Steady Pace +/-*
Aerobic Support	*2 race distance up +/-*	*Lactate Threshold to 10k pace +/-*
Direct Aerobic Support	*1 race distance up +/-*	*5k pace +/-*
Specific	*Race pace +/-*	*2 mile pace +/-*
Direct Anaerobic Support	*1 race distance down +/-*	*1 mile pace +/-*
Anaerobic Support	*2 race distance down +/-*	*800m pace +/-*
General Speed	*3 race distance down +/-*	*Speed and Special Endurance*
Neuromuscular	*Speed Work*	*MaxV/Pure Speed*

**Science of Running*

Specific training is the goal pace an athlete wants to run for the specific distance he or she is training to run. For this example, the athlete wants run a 12 min 2 mile run. Note that goal pace should be something extremely faster than the athletes current fitness level. If the athlete currently runs a 14 min 2 mile then the initial goal training pace should not be a 12 min 2 mile, but something closer to a 13:30. If the goal pace is too fast, the training will put too much stress on the athlete's body and not allow the athlete to recover properly. In the 12 min 2 mile example, the athlete should aim for 400m splits of 90sec with a range from 88sec to 92sec.

The next step down the pyramid is support work with the first level of support work being Direct Aerobic Support and Direct Anaerobic Support. Both the endurance side and speed side of the training equation need to be addressed to build a multifaceted training base. The direct support work directly connects to the race distance. The next level down is Aerobic Support and Anaerobic Support, both are two steps away from the specific event pace.

Finally the final large level of the pyramid is General Endurance and Recovery for the endurance side and General Speed and Neuromuscular for the speed side. General Endurance is 3 to 4 race distances up. For general endurance there is a steady pace which is the next pace up from marathon pace and it takes some focus to run but is not tiring. After steady pace there is easy pace which is 25-30% slower than marathon pace and is what most normal distance runs are run.
Finally there is recovery pace which is slower than general training and is not meant to build fitness but aid in recovery and adaptation. Neuromuscular training for speed is pure sprints like Max Velocity training previously discussed above.



*Reproduced from the Science of Running

Here is a chart to help determine training paces based of a 2 mile run.

Distance	*Percentage of 2 mile*	*Pace per mile based off 12 min 2 mile*
1 mile	*109%*	*5:28*
2 mile	*100%*	*6:00*
5k	*97%*	*6:11*
10k	*92%*	*6:31*
Lactate Threshold	*88%*	*6:49*
Half Marathon	*85%*	*7:04*
Marathon	*82%*	*7:19*
Steady State	*75%*	*8:00*
Easy	*70%*	*8:34*

Training Approach

When looking at a long term plan, training should start at the base of the pyramid and progress towards the top. Starting with general endurance works allows the body to adapt to handling a high work load so that later in the plan the body can handle work at the faster paces without injury. The general endurance base also allows a large amount of work to be done successfully at faster paces later in training. Training then should progressively move up the pyramid; the preceding lower level helps the body adapt to successfully handle the next level. Jumping a rung could lead to injury or at the least decrease the amount quality work that can done at the next level which decreases the possible performance gains. A base of speed needs to be established as

well. If speed is not addressed early, then when speed work is introduced later in training there is an excess amount of soreness that impedes training, or performances quickly improve then rapidly decline because the body was not appropriately prepped for the stimulus.

The speed base trains the body to recruit more muscle fibers that can then be used for endurance training. It should be noted also the neuromuscular training (max velocity) work should always be trained before any speed endurance work. This reduces the chances of hamstring injury because an acute increase of a training load usually leads to injury, plus a quality like speed can't be endured until it is developed. Training should work from the ends of the spectrum (extremes) back to the middle (peak).

Many variables can be manipulated when building workouts to fit each category. The list consists of rep distance, total volume, rest between reps and sets, speed, rest (jogging/standing/ etc.), density, and terrain. For a specific workout a total volume at a particular pace can be broken into smaller chunks. For example, to do a total volume of 2400m at 1 mile pace the workout can be broken into 3x800m, and if that is initially too challenging, then 6x400m can be used. Even earlier in a plan that workout could be 3x2x400m. The possibilities are endless on how to manipulate rep distance and sets to achieve a total volume. The workouts should be built over time so more work can be handled at a specific pace by changing rep length or manipulating rest intervals. Manipulating rest intervals can change the training density. For 3x2x400m, the rest could be 60s between reps and 2 mins between sets giving a total rest period of 7 mins. The 6x400m workout could have a rest interval of 75s giving a total rest period of just over 6 mins. The 3x800m workout could then have rest interval of 2 min between reps for a total rest time of 4 mins. With each workout the density increases meaning the work performed in a given period of time increases.

The type of recovery can also be varied. Recovery between reps can be jogging, standing, or include another activity. Standing recovery allows the anaerobic energy system to recovery but can cause fatigue by-products to pool. This can allow higher speeds on subsequent reps. Jogging recovery keeps the aerobic energy system engaged. This can help clear by-products and will make each subsequent rep more aerobic. Jogging paces can be anywhere from slower than the rep pace to a shuffle. Additional things can also be added to recovery like plyometrics or bounding. These activities can help recruit additional muscle fibers for subsequent reps through a phenomenon known as post-activation potentiation.

When building a training plan, the coach needs to look at the specific areas he or she wants to address and for how long he or she wants to address them as the plan progresses through the year. Do the athletes need more anaerobic work or are they lacking aerobically? What are their weak points? As a general rule of thumb, about 80% of training should be general or easy, and 20% should be considered a workout. About 2-3 real workouts a week should be the goal. General speed and neuromuscular training can be considered part of the 80% because they tax the body in a much different way than a hard anaerobic or aerobic interval session. Too many hard works in a week impede the body's ability to recover. Below are example workouts and progression for each category based on the 2 mile race distance.

Recovery

-4 mi run at 70% of two mile pace

General Endurance

-5 mi run at 75% of two mile pace

-4 mi steady run with 5x30s pick-ups at half marathon pace

-5 mi Progression run start at a steady pace and progress down to half marathon pace

Neuromuscular

-8x30m sprints

-8x30m hill sprints

General Speed

-6x60m sprints

-5x90m Sprint, Float, Sprint (35m, 30m, 25m)

The long run is another important part of endurance training. The long run can be considered a workout and does not need to be a specific percentage of the weekly volume. The long run will stress muscle fibers that don't typically get stress during normal runs. As the fibers that are stressed in normal runs fatigue, new muscle fiber will pick up the workload in the long run. The long run also helps with glycogen stores. Long runs can vary from 8 to 18 miles depending on the desired race distance. The pace for the long run is similar to a normal distance run/easy pace.

The next levels in the pyramid after the general work and long run are the support categories.

Aerobic Support

-4 mi run w/ 10 min of the run at LT pace

-Alternation 800m at 10k pace/800m steady for 5 mi

-Fartlek 6min, 3, 5, 2, 4, 1 at 10k pace w/ easy 2 min jog in between

Direct Aerobic Support

-Alternation 4x 600m at 5k pace/600m easy

-3x(4x400m) at 5k pace w/ 40s b/t reps and 4 min b/t sets

-2x(800m, 800m, 400m) at 5k pace w/45s between reps and 4 min b/t sets

Anaerobic Support

-16x100m at 800m pace w/ 60s rest

-8x200m at 800m pace/ 2 min rest

-2x(300m, 200m, 100m) at 800m pace w/ 3 min rest

Direct Anaerobic Support

-8x200m at 1 mile pace w/ 200m easy jog recovery

-3x(500m, 400m, 300m) at 1 mile pace w/ 60s b/t reps and 4 min b/t sets

-3x800m at 1 mile pace w/ 2 min rest

The final level of the pyramid is the specific training.

Specific

-12x200m at 2 mile pace w/ 200m jog recovery

-6x2min Hill Sprints at 2 mile pace w/ jog back recovery

-9x300m at 2 mile pace w/ 100m jog recovery

How long a coach spends addressing each ability depends on the needs of the athlete. A category can be readdressed any time once its initial training block has been executed. Training is a fluid process. Workout categories can be blended together as well. Blended workouts can help connect the categories together, vary the metabolic stress at different intervals, and improve muscle fiber recruitment.

Blended

-1.5 mi at 10k pace, 1 mi at 5k pace, 800m at 3k pace w/ 4 min rest b/t reps
-3x800m at 3k pace w/ 2 min rest then 3x200m at 800m pace w/ 200m jo recovery
-900m (5k pace), 400 (1mi pace), 800m (3k pace), 300m (800m pace), 500m (1 mi pace) w/ 4 min rest b/t reps

Total weekly mileage varies by event. Weekly mileage does not have to slowly increase by 10% per week if a pervious volume had already been trained at. Mileage can stay pretty consistent week to week throughout the whole plan. Each week should have 2 harder workouts and one can be aerobic focused and one anaerobic. The workouts do not have to come from the same category in a week.

Strength Training

Strength training is a very broad umbrella that contains many different methods of training. Training for strength addresses absolute strength, power, reactive strength, and general strength. The methods of training include weight training, multijumps, multithrows, medicine balls, and bodyweight exercises.

Weight Training

For weight training we will group together barbells, dumbbells, kettlebells, plus all the exercise variations that can be done with each. An exercise that is barbell based can be done with one of the other implements. Strength training can achieve multiple end states as well. A general principle to takeaway is that strength needs to be developed before strength endurance and power. To build a balanced weight training program the ratio of squats to upper body push/pull to Olympic lifts should be 3:2:2. Strong legs create a strong base to generate force. For squats exercises the balance should be 2:1 for bilateral (two leg) to unilateral (one leg) exercises. Most athletic events involve performing movements with only one support leg (running) therefore unilateral strength needs to be trained. Olympic lifts will be defined as the clean, snatch, jerk, and any movement derived from these lifts. Static lifts will be defined as the traditional weight training exercises like squats or presses. These exercises involve slow movement speeds.

Absolute Strength

Absolute strength (strength) is the starting point for strength training. It is hardly an arguable point that having strength is not a good thing for any sporting endeavor. There is a point though where more strength does not have a carryover in athletic performance and that point is arguably at a 2x bodyweight squat. For development of absolute strength the load should start at 70% of a maximal load and progress from there. Strength can progress in blocks working from high reps to lower reps then can repeat. Since strength training is such a broad category the rep scheme for a block can be continually recycle and new strength abilities stressed. An initial training cycle could focus on concentric strength, then another cycle on isometric strength, then a cycle on isometric strength. USA Weightlifting provides an example 12 week progression that involves two loading weeks, a rest week, and then performance week. It needs to be note that though USA Weightlifting is providing an example strength progression static lifts not Olympic lifts should be used to address absolute strength.

	Cycle 1 Preparation Phase				Cycle 2 Strength Phase				Cycle 3 Competition Phase			
Week	1	2	3	4	5	6	7	8	9	10	11	12
	Base	Loading	Supercompensation /Recovery	Performance	Base	Loading	Supercompensation /Recovery	Performance	Base	Loading	Supercompensation /Recovery	Performance
% Load	70	75	65	80	75	80	70	90	85	90	80	100
Target Sets Olympic Lifts	3	4	2	2	3	4	2	2	3	4	2	2
Target Reps	3	3	3	3	2	2	2	2	1	1	1	1
Targets Sets Static Lift	3	4	2	3	3	4	2	3	3	4	2	3
Target Reps	5	5	5	5	3	3	3	3	2	2	2	2

In the 12 week example above the first cycle builds the base of training. This prepares the body to handle a heavy strength load. The example is strength focus using a rep range under 5 reps. The base training for strength can consist of a hypertrophy, work capacity, or the lower percentage end of maximal strength training but it is not limited to just those categories. Those categories are the traditional starting point. A hypertrophy cycle can also be used to build a base. For a hypertrophy cycle the rep range needs to be between 5-12 reps for 3-5 sets with the load ranging from 60-85% of a 1 rep max. Hypertrophy training should only be conducted with static type lifts. A work capacity cycle would consist of exercises that have long time lengths where the muscle is under tension. An example is a 3-step squat. The sets and reps are similar to hypertrophy training. The lower end strength training should be 6 reps or under and the load between 70-80%. The initial strength training cycle creates the first neural adaptions where the body becomes more efficient at the movement pattern and muscle recruitment.

After establishing a base of strength that allows an athlete to handle a strength workload then the training can progress. The USAW table is an example progression that focuses on increasing intensity while decreasing volume to improve technique and absolute strength. In that example the same exercises can be used in each progressive for the 12 week block. That works great for strength sports. The other approach that can be taken is to address different strength qualities in a designed progression. Strength qualities that relate to absolute strength are concentric strength (squat strength out of the bottom of the lift), isometric strength, and eccentric strength. It should be noted that most injuries occur during eccentric muscle contractions so eccentric needs to be addressed to have a successful training program.

One proven method to progress absolute strength training is to start with a general strength base, then move to concentric strength, isometric, eccentric, maximal strength, then finish with strength endurance. A general strength base has already been discussed. Concentric strength can be emphasized using box squats. The rep range should be between 3-6 reps with 3-5 sets and a load of 75-90%. Isometric strength is the next cycle and that can be trained with pause squats. The rep range, sets, and load are the same as the box squats. Eccentric would be the 4th cycle. There are two types of eccentric strength that can be addressed: deceleration strength or maximal eccentric strength. In a group setting deceleration strength is easier to address in the weight room and maximal eccentric strength can be addressed with multijumps. To address decleration strength slow negative squats can be used where the athlete slowly descends for 4 seconds. The reps and sets are the same as box squats and pause squats but the load is different. The load depends on how long the descent will be. For a 4 second decent the load can range from 60-75%. For a slower descent the load should decrease. After eccentric strength heavy maximal strength can be addressed. The rep range is 1-3 reps, 3-5 sets, with a load of 85-100%. With strength training rep test where an athlete picks a weight and attempts to do as many reps as possible, preferably use a weight that can be down for 3 to 5 reps, or a 1 rep max can be used to evaluate the program. These test if down after 1 or 2 cycles can show a progression in strength and help calculate a new maximum for the athlete to build training loads off of.

For all of the strength rest needs to sufficient enough for the work to be completed. Rest after heavy sets (75% and up) should be at least 90 seconds or more. With all strength training quality technique is paramount. If technique breaking down the exercise needs to be stopped. Once strength has been sufficiently addressed then strength endurance been addressed. Strength endurance be addressed using higher reps and lighter loads or addressed by increasing a programs density. Squats for higher reps can be done for 15-30 reps, 2-4 sets, at a load of 30-60%. For density squat sets can be down 2-4 reps, 8-12 sets, and loads of 70-85% with rest periods from 30 seconds to 1 min.

An Example Strength Progression for the Squat

Base Strength	*Concentric Strength*	*Isometric Strength*	*Eccentric Strength*	*Maximal Strength*	*Strength Endurance*
Squats 4x4 at 75%	*Box Squats 5x4 at 80%*	*Pause Squat 5x4 at 75% with a 3 second pause at the bottom*	*Slow Negative Squats 5x4 @ 70% with a 4 second descent*	*Squat 5x2 with 2 sets at 85%, 2 sets at 90%, and 1 set at 95%*	*Squat 10x2 @ 75% with 45 second rest*

Key exercises should be focused on for weight training. The body has a finite amount of energy and that energy needs to focus towards exercise that have most benefits. Exercises that emphasis large muscle groups and bigger movement patterns of multiple joints need to be execute. The daily session should have the most complexed and heaviest exercises first then progress to exercises that emphasize less muscle groups and joints. An example progression of a daily session is listed in the power section. There are a few ways to create a breakdown for weight training. Westside Barbell teaches a 4 day system with 2 max effort days, one upper body, and

one lower body, then 2 faster power days with one upper body and one lower body. USA Weightlifting normally alternates pushing and pulling in relation to the lower body. One day is a push day like jerk and squat and one day is pull day likes cleans and snatch. Athletic training for sports is normally a total body routine with an Olympic lift, squat movement, upper body push/pull, and a core or posterior chain movement. The total body routine focuses on big exercises. For any program only 4-5 exercises are needed in a daily session. Training based on body parts is never recommended when training for performance. Example exercises are below for a total body routine. Any of the below exercise can be done with a barbell, dumbbells or kettlebells.

Example Exercises

Lower Body	*Upper body Push*	*Upper body Pull*	*Posterior Chain*	*Core*
Squat	*Military Press*	*Bent-over Row*	*Stiff Leg Deadlift*	*Russian Twist*
Pause Squat	*Flat Bench Press*	*Pull ups*	*Parallete Bridge*	*Turkish Getup*
Box Squat	*Decline Bench*	*Upright Row*	*Romanian Deadlift*	*Wood chopper*
3-step Squat	*Incline Bench*	*Sumo Deadlift*	*T-RDLs*	*Plate Twist*
Inertial Squats	*Split Press*	*Deadlift*	*Good-morning*	*Delivery Lift*
Slow Eccentric Squats	*Pause Bench Press*	*Reverse Grip Bent-over Row*	*Staggered Good-morning*	*Turkish Sit-up*
Maximal Eccentric Squat	*Slow Negative Bench Press*	*Standing Band Row*	*Glute-Ham Raise*	
Front Squat	*Weighted Dips*		*Kettlebell Swing*	
Step ups (High/Low Box)	*Weighted Push-ups*			
Bulgarian Split Squat	*Behind the Neck Press*			
Lunges				
Walking Lunges				
Spilt Squat				
Rhythm ¼ Squats				

Power

Power development is normally trained two ways in weight training. The first way is using Olympic weight lifting and the second is using lower barbell loads and faster barbell speeds like the Westside Barbell Dynamic Effort method. Power is also trained through jumps and throws but this section will address loaded power training.

At no point should an Olympic lift or its derivative be down for more than 5 reps. Sets are more important than reps. High reps cause form to breakdown and then poor form becomes the learned motor pattern. High sets and lower reps allow proper technique to be practice multiple times. With Olympic weight lifting technique is most important to generating the power the lifts are designed to display. Olympic weightlifting generates 5x the power output of static lifts like the squat. In a daily strength training session the Olympic lifts need to be placed first in the session. Due to the complexity of the lifts they need to be done when the body is least fatigued and always with a lower rep count even when the focus is hypertrophy. The rep count remains low

even in a hypertrophy block because those exercises are designed for power development not muscle fiber size and when technique breaks down due to fatigue injury happens. Below is an example exercise order for a daily session.

Example Daily Session

Clean	*Clean Pull*
Squat	*Lunge*
Pull ups	*Incline Bench Press*
RDLs	*Goodmorning*

A sports performance based Olympic weight lifting progression needs to start with training the first pull since power generation occurs from the ground up. The first pull occurs from roughly the ground to mid-thigh. In sports performance power generation is most important not necessarily competition level technique that's why pulling is emphasized before the catch. An example progression is below.

Clean Progression

Clean Pull 4x4	*Clean Pull 5x3*	*Clean 6x3*	*Clean 6x2*

Always remember that Olympic weightlifting is not for everyone because of its complexity. There are many other ways to focus on power development that don't require the heavy focus on technique; multijumps and multithrows are two examples. Below are example Olympic Weightlifting exercise and derivatives that can be used for sports performance

Olympic lifts and Derivatives

Jerk	*Clean*	*Snatch*
Split Jerk	*Clean*	*Snatch*
Push Jerk	*Power Clean*	*Split Snatch*
Push Press	*Hang Clean*	*Power Snatch*
	Clean Pull	*Hang Snatch*
	Clean and Jerk	*Snatch Pull*

The other way to address power is using light barbell loads that are less than 60% of a 1 rep max and moving the barbell faster. Increasing barbell speed increases power output. Examples ae barbell or dumbbell jump squats at 25% of bodyweight for an external load, speed squats at 50%, or speed bench. The key is move the implement fast.

General Strength

General Strength for weight training will be defined as traditional body building type exercises. These exercises can be done in circuits for high rep counts (10-15 reps), lower loads, and short recovery (30-90 seconds). Typical circuit sessions have 18-24 total sets. The exercises done in circuits can emphasis energy system fitness. Longer circuits can stress the body anaerobically or aerobically which weight training typically does not. The circuits can improve strength endurance and body composition. Circuit style weight training helps boost growth hormone which aids in recovery. Circuits can use a combination of barbells, dumbbells, kettlebells, and medicine balls. Example circuits are below.

Circuits

A	*B*	*C*	*D*
DB Bicep Curl	*BB Bicep Curl*	*Side Squat*	*Closed Squat*
Tricep Extension	*Tricep Pushdown*	*Lat Pulldown*	*Row*
Single Leg Extension	*Single Leg Curl*	*RDL*	*Good Morning*
Shrugs	*Hammer Curls*	*Upright Row*	*DB Military Press*
Hip Extension	*Hip Flexion*	*Alt. Weighted V-up*	*Glute-Ham Raise*
DB Front Raises	*DB Lateral Raises*	*OH Side Bend*	*Russian Twist*

Alternate Methods

Alternate methods are any method for strength that does not involve weights. Here is where multijumps, multithrows, medicine balls, and body weight training will be placed. These means can address power, reactive strength, and general strength.

Multijumps

Multijumps develop both power and reactive strength. The power from multijumps is low load power, meaning the speed is high but the load is well. Maximal eccentric strength and reactive strength is best developed with multijumps. Multijumps can be broken down into 4 categories: in-place jumps, short bounds, extended bounds, and depth jumps. Each category increases in intensity. Jumping should not be a conditioning exercise for general fitness. Mechanics are important and so is power production because these exercise are design for power an reactive strength.

In-place Jumps

These are low load jumps without displacement. They are considered low load because the height at which the body's center of mass falls is relatively low. These jumps are normally done in a circuit fashion for 8-20 jumps per set and a total of 100-200 jumps. The circuit should be 12-15 minutes of work. Each set can be a different exercise or the same exercise. This category of jumps is your base training of multijump training. The work to rest ratio can vary from 1:1 to 2:1 work to rest. Box jumps can be placed in this category because once the body's center of mass leaves the ground in a box jump it does not fall back to the ground. It needs to be noted though that good box jumps require full hip extension. The focus should be on full hip extension not box height. High boxes emphasize hip mobility not explosive power. Example jump series are below.

In-place jumps

Sol	*Franky*
Lunge Jump	*Side-to-Side Hop*
Ski jump	*Buttkick Jump*
Single Leg Lateral Turn	*180-360s*
Straddle Jump	*Rocket Jump*
Single Leg Medial Turn	*Speed Skater*
Side-to-Side Hop	*Wideout*
Single Leg Forward-Back	*Squat Freeze Jump*
Tuck Jump	*Step-up Jump*

Short Bounds

These jumps are low to medium intensity depending on the horizontal distance covered. These jumps can require some coordination or learning that isn't required with the in-place jumps. The power output will also be higher. For short bounds do 5-20 sets with 1-5 contacts per set.

Short Bounds

Tony	*Mickey*
Standing Long Jump	*LLL*
3-Hops	*RRR*
Standing Triple Jump	*LLRR*
Double-Double (LLRR)	*RRLL*
	RLRL
	LRLR

Extended Bounds

These are bounds or jumps performed over distance. These jumps are high intensity. They focus on sustained force production. Prior jump training needs conducted before adding bounding. The jumps should be done for 10-40m per set for 100-400m total volume.

Extended Bounds

Vinny	*Turkish*
LLL…	*LLL…*
RRR…	*RRR…*
LLR…	*LLRR…*
RRL…	*Medial Hop (L&R)*
LLRR…	*Lateral Hop (L&R)*
RLRL…	

Depth Jumps

These are the most intense jump. They involve falling from an elevated surface and rebounding into a jump. The height of the surface dictates the intensity. A session should contain 20-40 total contacts. Surface heights range for 8"-40". The higher heights are reserved for advanced athletes. These jumps increase reactive strength.

Depth Jumps

Brick Top

Box-Stand Long Jump

Box-Hurdle

Box-Box-Stand Long Jump

Box-Hurdle

Multithrows

These are high intensity throwing routines that do not involve catching. The throws are done from various positions using a shot put or medicine ball. The load is relatively heavy like a shot put (16 lbs). The throw train power and coordination. Sessions should have 12-30 throws.

Mutltithrows

Morpheus	*Neo*
Overhead Back	*Lunge Chest (L&R)*
Between the Legs Forward	*Shoulder Step (L&R)*
Hammer Hip	*Overhead Step (L&R)*
Squat Chest	*Medial Hop (L&R)*

Medicine Ball Exercises

Medicine Ball routines consist of a variety of loaded exercises. These exercises are typically performed in a circuit. These circuits improve coordination due to varied movement patterns, increase strength endurance, energy system fitness, and flexibility. The circuits should address all 3 planes of motion. Medicine balls are great for improving core eccentric strength when used for throwing and catching. They also improve postural strength. The hormonal changes for circuits also aid in recovery. A training circuit should be 8-15 minutes and 1-3 circuits can be done in a session. The work to rest ratio can vary from 1:1 to 2:1 work to rest.

Medicine Ball Circuits

Pip	*MJ*
Reach and Hike	*Standing Shoulder Throw*
Rotation Exchange	*Back Toss Throw*
Medial Knee Toss	*Kneeling Good Morning*
Lateral Knee Toss	*Medial Kick*
Seated Russian twist	*Hip Toss*
Prone Throw	*Kneeling Overhead Forward*
Seated Roll and Throw	*Lateral Kick*
V-Up	*Kneeling Overhead Back Exchange*
Good Morning	*Leg Ad-Abs*
Seated Hip Throw	*Hurdle Reach*
Kneeling Shoulder Throw	*Prone Overhead Back Throw*

General Strength

These exercise involve no additional loading other than bodyweight. The exercises improve coordination, strength endurance, energy system fitness, and flexibility. These are your general calisthenics, core training, isometric training, and stability training. These are typically done in circuits that last 8-15 minutes and 1-3 circuits can be completed. The circuits should have 12-16 total sets. I core specific circuit should contain 10-12 total sets with a balance of between the left and right side. Variety is a key component. Variety helps reduce stress in the joints and muscles from repetitive training and that will reduce injuries. The exercises can also really challenge an athlete's range of motion because there is no external load. If general strength is done in a circuit the work to rest ratio is typically 1:1 or 2:1. Also in the general strength category are series that focus on the muscle fascia through deep ranges of motion or series that focus on function movement control. The work to rest ratio here is as needed so that form does not break down.

General Strength

Calisthenics	*Core*	*Fascia*	*Functional Movement*
Speed Pushup	*V-up*	*Forward Squat Walk*	*3-step Pushup*
Prisoner Squat	*Crunch w/ Twist*	*Backward Squat Walk*	*3-step Hip Flexion*
V-up	*Back Hyperextension*	*Lateral Squat Walk*	*3-step Hip Extension*
Pushup w/ Clap	*Leg Toss*	*Pushup Walk*	*3-step Dive Bomber*
Rocket Jump	*Flutter Kick*	*Duck Walk*	*Hip Flexion-Flex*
Back Hyperextension	*Wrestler Bridge*	*Squat-Turn Walk*	*Hip Extension-Flex*
Wrestler Bridge	*L-over*		*3-step Wrestler Bridge*
Dip	*Side Up*		*3-step Lateral Leg Lift*
Russian Dance	*Back Hyper w. Twist*		*3-step Dip*
L-over	*Bicycles*		*Standing B's*
Swimmer	*L-Up to Hip Lift*		*3–position Squat*
Dive Bomber	*Supine Hip Extension*		*3-step Leg Swing*
Burpee	*Double Leg Slide*		*Bridge Up-Knee Lift*
	3-way Rollup		

Coordination and Flexibility Training

These are the two smallest components of training and a majority of their training can roped into strength or speed training, warm up, or cool down so they will be briefly addressed.

Coordination

Agility, mobility, and balance are all part of coordination training. Agility is related to speed training while mobility and balance are more strength related.

Agility

Typical agility training is some type of cone drill like the T-drill, Illinois' agility test, of the 5-10-5. Distance between cones should be no more than 5 seconds so that speed is maintained. Agility work needs to be treated as speed work. The total volume should be the same or less and rest should be high. The volume can be reduced due to the higher need for eccentric strength due to the deceleration agility training requires.

Mobility

Mobility training is not just flexibility training. Mobility is a hybrid of flexibility and strength. The fascia series from the general strength section could double as a mobility series especially if the series was done on an incline. Hurdles are often used in mobility training. They cause the hips to move through large controlled ranges of motion. Mobility makes for great warm up activities. Typically hurdle mobility involves 1-3 sets of 2-8 exercises over 6-12 hurdles. The total volume can range from 40-120 hurdles. The sessions are at a controlled pace.

Hurdle Mobility

Dynamic	*Static*
Sidekick	*Walkover*
Dynamic Alternating Walkover	*Alternating around the World*
Alternating Over and Back	*Over and Under*
Alternating Skip over	*Alternating Static/Dynamic Walkover*

Balance

Balance training is important because it helps with proprioception and postural stability. Static balance can be trained by holding positions in an isometric fashion as part of a general strength circuit. Dynamic balance can be trained using a BOSU ball, wobble board, and etc. Dynamic balance can be integrated into strength training when the load is low. The integration of balance training into strength training can assist in motor learning and skill acquisition for the advanced athlete.

Flexibility

Static flexibility is what people normally consider flexibility training. There is a fear that static flexibility will decrease muscle stiffness and negatively affect strength training. That is true in the short term. In the long term, static stretching helps tendons and ligaments to become more efficient which improves strength training. Static stretches should be help for longer periods of time (90s or more) to create true physiological change. An advanced static stretching concept that can be integrated into training involves the concept of relax-contract-relax where a person stretches, contracts the muscle, and then moves deeper into the stretch. The contraction relaxes the Golgi tendon apparatus allowing the athlete to get deeper in a stretch. This is a form of proprioceptive neuromuscular facilitation (PNF) stretching.

Putting a Plan Together

Here are some general rules of thumb to help turn the above information into a long term plan. Remember that coaches become better at planning and organizing training the more they practice it over time. Great coaches don't happen overnight.

1. Include some form of speed training weekly even if a program is endurance focused.
2. Do loaded strength training at least twice weekly.
3. Never stop training strength even when doing a strength endurance. The emphasis can greatly decrease but it should never go away from a weekly training.
4. Evaluate the program through testing at a minimum every 12 weeks.
5. Use the hard/easy day philosophy. Alternate hard and easy days. Hard days can be classified hard based on how they tax the nervous system (speed and strength) or how they tax the anaerobic energy system when a program is more endurance focused.
6. Use general strength training to create variance in the training plan.
7. Planned training is injury prevention because it addresses weaknesses and builds into the next phase.
8. Hard workouts should occur no more than 2-3 times per week.
9. Rest and recovery should be planned. An under-trained athlete preforms better than an over-trained athlete.
10. Do not short change the warm up or neglect the cool down.
11. Maintain proper work to rest ratios.
12. Focus on mechanics not just fatigue.
13. Endurance running volume can stay relatively constant throughout the year.
14. Focus exercise selections on getting the biggest bang for the buck.
15. Always break things into ability groups for speed, endurance, and strength training.

Case Study

Here are some able case studies that demonstrate in qualitative manner how everything above can be applied to solve a problem. For brevity specific workouts will not be described. The problem and solution will be described conceptually.

Afghanistan Deployment

Situation: A platoon is 6 months away from a deployment to Afghanistan. The platoon will be in the mountains of Regional Command East and will be conducting a mix of mounted and dismounted patrols in non-urban areas.

Solution: Dismounted patrolling is normally conduct with a relative load that can range from 50-100 lbs or more. To prepare for the dismounted load longer rucks of up to 4-6 hours not be conduct at a reasonable pace of 20-24 minutes per mile. The body is being condition for spending to time under a load not a speed it can move with that load. Ruck marches can be done every other work steadily increasing from 60 minutes to 4 hours or longer. A short ruck week can be alternated with a longer ruck week. Heavier strength work should be the focus for the first 4 months then strength endurance can be emphasized. For strength endurance training density should be the focus not just high rep volume in a set. The strength work helps strength the bones and tendons to handle the dismounted patrols. The running should been aerobic focused with a majority of the runs being at 80% of 2 mile pace to 65%. Weekly volume can range from 20-30 miles week and includes ruck marching. This creates physiological changes that help the body thrive in the mountain environment. General strength should also focus on stability and core strength since dismounted patrols will occur in uneven terrain. At minimum 3 days a week should have a general strength circuit.

Urban Iraq Deployment

Situation: A platoon is 4 months away from a deployment to Mosul, Iraq. The platoon will be in the counted dismounted patrols in an urban environment.

Solution: The ruck pace should be slower paced at 20-24 min per mile. The total ruck march distance can be 4 hours or less because urban patrolling involves more frequent stops. A heavier emphasis needs to be place on anaerobic training. Speed needs to be emphasized weekly progressing all the way to speed endurance. Anaerobic intervals should focus on two mile pace or below with interval reps at 400m or under but many reps to maintain an appropriate volume. Aerobic training should also be interval focused. The rep lengths should be short with short recoveries and jogging recoveries. Still though do not do more than 3 hard days a week. Heavy strength needs done twice per week minimum with a solid does of upper body pulling strength. Power can also me trained in the last month and a half before deployment.

Ranger Prep Program

Situation: An NCO from the platoon is attempting to go to Ranger School. He currently rucks 2:50 for a 12 mile ruck march and runs a 39 min 5 mile. The commander wants him to run a 37 min 5 mile run and ruck a 2:40 12 mile. He has 2 months to train.

Solution: This NCOs training will be heavily aerobic. For the ruck march a ruck can be done every other week to every week. One week can be a fast paced interval ruck. The NCO needs to

a segment at 12:30-13:00 min mile then a slower segment at a 15 min mile pace. He can alternate 2 min fast and 2 min slower. The other ruck can be a slower aerobically focused ruck at a 17:00-18:00 min per mile pace. To train for the 5 mile intervals at 5k and half marathon pace need trained for the first month to build a support base. Alternating distance runs at goal 5 mile pace and marathon pace or slower need, where a half mile is at goal pace and a half mile easy, need done in the second month. Weekly volume can be up to 30 miles. Pushups and sit ups should be trained twice a week. One day should be high volume and one lower volume but with a load. Strength should be trained twice a week. Strength endurance in the weight room is not necessary because of the ruck/run volume and pushup/sit up work.

*Note APFT Prep will be similar to Ranger Prep. The support work needs to be done at 1 mile and 5k pace. The ruck marches can be replaced with long runs of up to 8 miles but 5-6 miles is a good distance for most people. Pushup, sit up and strength work can stay the same.

e same.